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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/671,303	09/24/2003	Zhenan Bao	100.2495	3133

27997 7590 07/28/2005  
PRIEST & GOLDSTEIN PLLC  
5015 SOUTHPARK DRIVE  
SUITE 230  
DURHAM, NC 27713-7736

EXAMINER

SMITH, BRADLEY

ART UNIT	PAPER NUMBER
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2891

DATE MAILED: 07/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/671,303

Applicant(s)

BAO ET AL.

Examiner

Bradley K. Smith

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 20 April 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 19-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-8 is/are rejected.
- 7) ☒ Claim(s) 2,9-18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 2/19/04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2/19/04, 7/6/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: search notes.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election of claims 1-8 and 11-18 in the reply filed on 4/20/05 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Claims 1-18 will be examined.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 1, 3, 7, 8, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Katz (US Patent 6,403,397). Katz disclose a substrate having a substrate surface, a layer of a first material overlying a first region of said substrate surface; a layer of a semiconductor overlying said layer of first material and overlying a second region of said substrate surface; a first region of said layer of semiconductor, overlying said layer of first material and having a first conductivity; a second region of said layer of semiconductor, overlying said second region of said substrate surface and having a second conductivity; and said first conductivity being substantially different from said second conductivity (see abstract). With respect to claim 3, Katz disclose first material is a polymer. With respect to claim 7, Katz disclose using naphthalene-1,4,5,8-

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tetracarboxylic dianhydride. With respect to claim 8, Katz disclose a first source electrode', and a first drain electrode; said first source and drain electrodes being in spaced apart conductive contact with a first channel portion of either said first or said second region of said layer of semiconductor, said first gate electrode being positioned to control a conductivity of said first channel portion (see figure 2).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katz (US Patent 6,403,397) in view of Laquindanum et al. ("Morphological Origin of High Mobility in Pentacene Thin film transistors"). Katz disclose a substrate having a substrate surface, a layer of a first material overlying a first region of said substrate surface; a layer of a semiconductor overlying said layer of first material and overlying a second region of said substrate surface; a first region of said layer of semiconductor, overlying said layer of first material and having a first conductivity; a second region of said layer of semiconductor, overlying said second region of said substrate surface and having a second conductivity; and said first conductivity being substantially different from said second conductivity (see abstract). However Katz fails to disclose conductivity changing with grain size. Where Laquindanum et al. disclose the change in conductivity

with grain size. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Katz and Laquindanum et al., because it would allow one to effectively control the device characteristics of an active device such as a transistor.

### ***Allowable Subject Matter***

6. Claims 2, 9 -18 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter: the prior art neither teaches nor suggests a second material overlying said second region of said substrate surface, said second region of said layer of semiconductor overlying said layer of said second material (claims 2, 9-11, and 13-18) or said second source and second drain electrodes being in spaced apart conductive contact with a second channel portion of either said first region or said second region of said layer of semiconductor, said second gate electrode being positioned to control a conductivity of said second channel portion (claim 12).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bradley K. Smith whose telephone number is (571) 272-1884. The examiner can normally be reached on 10-6 Monday through Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Baumeister can be reached on (571) 272-1722. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'B. K. Smith', with a stylized, cursive script.

**BRADLEY K. SMITH  
PRIMARY EXAMINER**